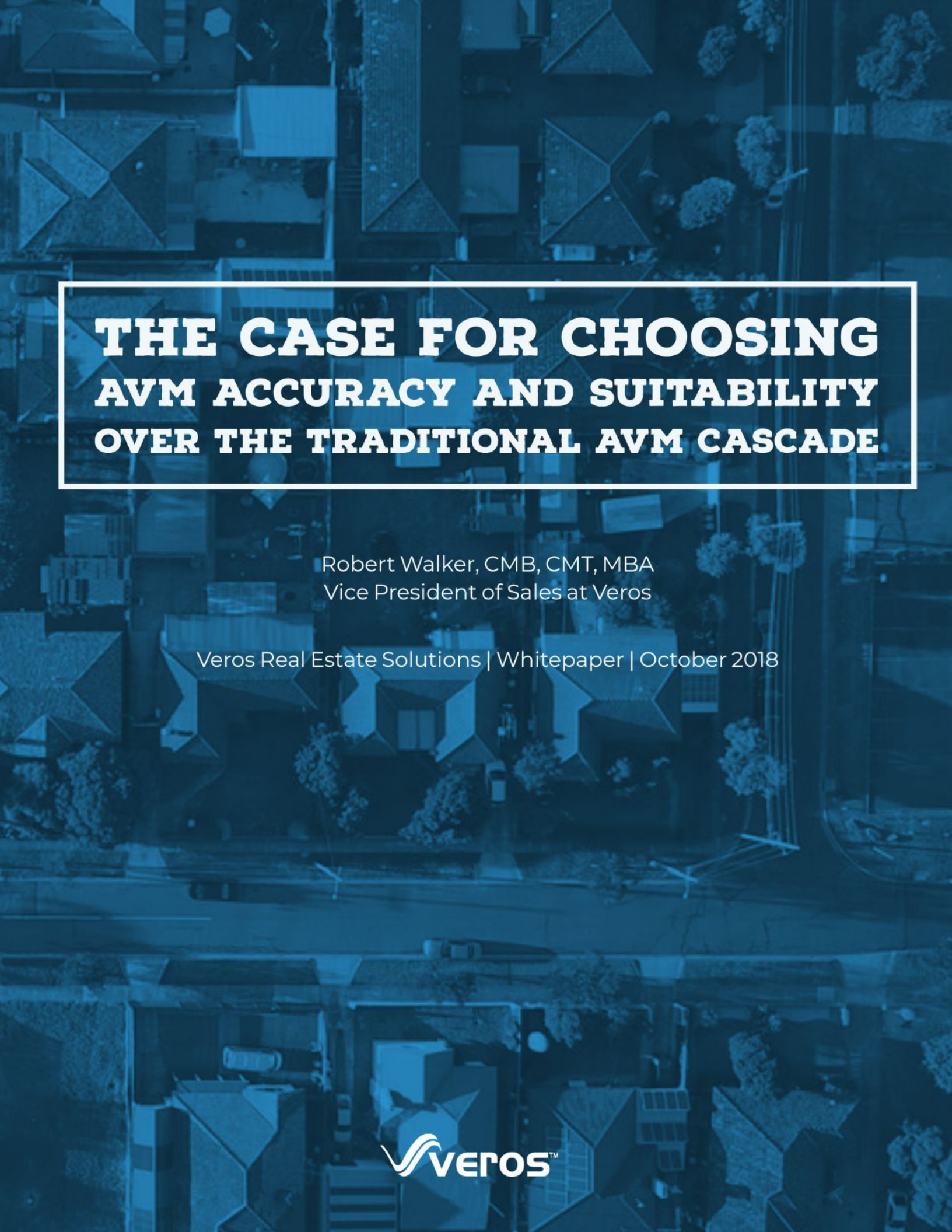

THE CASE FOR CHOOSING AVM ACCURACY AND SUITABILITY OVER THE TRADITIONAL AVM CASCADE

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The Case for Choosing AVM Accuracy and Suitability Over the Traditional AVM Cascade

Home equity lending has again become attractive to mortgage originators, including banks and credit unions, as they struggle to maintain volumes in a market where purchase money mortgages will dominate and mortgage refinance loans are projected to comprise just 25 percent of origination volume. With homeowners staying in their homes longer, the opportunity to lend against their equity will enable some lenders to perform well even with the marked drop in originations.

In the first quarter of 2018 home equity lines of credit increased by 18 percent from the previous quarter and 14 percent from the same quarter in 2017. In the first three months of this year, nearly 350,000 borrowers took out new HELOCs.[1] This constitutes a fantastic opportunity for banks and credit unions, especially since many traditional mortgage lenders do not participate in the home equity market.

Both home equity loan products and second liens have benefited from the speed and reduced cost of alternative valuation methods for many years now. The opportunity for lenders to save both time and money originating these products has never been greater. All lenders need to do now is determine what valuation method will meet their risk appetite.

The development of the modern AVM

Far and away, the most affordable valuation method for real estate is the Automated Valuation Model (AVM). Over the years, these affordable tools have become more sophisticated and are now an important risk and valuation tool used throughout the loan cycle, most notably in the home equity lending business.

In the early days, AVMs were fueled by public record data exclusively, which meant that some performed well in one part of the country, and not as well in another. Cascades were the answer at the time. A well-designed AVM cascade allowed lenders to obtain higher hit rates as they attempted to value properties across the country.

Starting around 2010, AVMs began incorporating data on a large scale from multiple listing sources. As you might expect, the inclusion of housing "supply side" data contributed to a continued rise in AVM accuracy, especially among the large national brands. In time, additional data sources became available along with improved algorithms and better analytics. Then, more powerful computers made it possible for AVM modelers to capitalize on big data. Performance from quality AVMs steadily improved. All of these improvements have led many to question whether traditional AVM cascades are still appropriate more than 15 years after their original implementation.

[1] Guerin, Jessica (2018). "*HELOC use is on the rise" Housingwire.com*.
https://www.housingwire.com/articles/43830-heloc-use-is-on-the-rise

Especially since 2010, hit rates and coverage for all the top tier AVMs have increased markedly. Hit rates for many of the national brands are as high as 90 percent or greater nationally. At the inception of cascades, top tier hit rates on a national level topped out at around 70 percent. One of the primary objectives of initial cascade logic was to increase both coverage and hit rates. The good news is that hit rates of top tier AVMs are now very high, and cascades are not required to achieve higher hit rates, as stand-alone AVMs can accomplish this task without cascade logic. Therefore, the only remaining function of a cascade is to selectively pick the most accurate AVM for the subject property. However, traditional cascades do not function this way. They are designed to determine the most accurate – or second most accurate -- AVM at the county level.

For this reason, cascades don't even remotely address whether or not an AVM is an appropriate valuation tool for the subject property. Cascades merely assume that end-users need an AVM, and therefore an AVM will be generated based upon the county level look-up tables alluded to above.

Some regulators have been asking this question for a long time, wondering whether these automated models could really protect banks and homeowners. The answer to that question is yes...and no, depending upon the property in question.

We now understand that most, but not all properties are viable candidates for AVM use. Banks now need to determine whether or not an AVM is an appropriate property valuation tool for the subject property before engaging any AVM and, if the answer is yes, use the AVM that provides the most accurate value. If not appropriate, they should forego AVM use on that property and rely instead on another trusted valuation approach for that specific property need.

AVMs are data and analytic driven, as we know. Generically speaking, a property is suitable for AVM analysis when the property is consistent with neighborhood norms and there is plentiful data on the subject property, the neighborhood and recent sales in close proximity to the subject property. When these conditions are met, which occurs more often than not with the previously described recent data enhancements, the automated model can return an accurate result and we say the AVM has scored a hit.

The opposite is true for non-suitable properties. Because these conditions are not met, we call these properties unsuitable for AVM valuation. The challenge is to make the correct binary choice. Unfortunately, for too many lenders the ingrained approach of the AVM cascade has never aligned with suitability. For many years, it was easy to jump on the "cascade bandwagon" because there was no alternative, and cascades were the tool of choice for virtually every AVM user.

At numerous public presentations, one OCC regulator (now retired) went to great lengths to reiterate that lenders must determine what valuation product or methodology is adequate for the valuation assignment. This notion is at the heart of AVM suitability.

The reasons for questioning the modern AVM cascade

Cascades remain the "go to" application for many AVM users. By definition, cascades are typically county level look up tables. For example, in County A, the AVMs of preference, based on accuracy testing, are

AVMs one, two, and three. However, in County B, the AVMs recommended by the cascade might be AVMs seven, five, and one, in that order.

In effect, lenders are relying on the cascade to determine whether a property is suitable for evaluation with an AVM. Our research indicates that cascading AVMs as a method for choosing which valuation tool to use for a given property carries with it some unintended and unpleasant consequences. We learned this when we developed a tool to serve the specific purpose of answering the regulator's question of AVM suitability at the subject property level.

Veros invented VeroPRECISION as an AVM cascade alternative optimized for accuracy. Our goal was to create the most accurate AVM output. We sought to accomplish this objective by determining AVM suitability at the PROPERTY level. Subsequently, if the property is "suitable" we run two top tier AVMs on each subject property simultaneously and then determining the most accurate value for the property based on an analysis of the values provided along with the supporting data and analytics used by each of these models.

This approach works extremely well in terms of achieving previously unachievable levels of valuation accuracy. The tool was also able to tell us, at the property level, when a subject property was unsuitable for AVM evaluation.

When VeroPRECISION was compared to recent interior inspection appraisals of the same properties, the following things became clear:

- Approximately 70 to 80+ percent of the real property in the US can now be accurately valued with an AVM. This is a national figure. Suitability rates are higher in some locations and lower in others.
- Determining AVM suitability at the property level contributes significantly to AVM accuracy.
- Running multiple top tier AVM brands on the subject property simultaneously (not in a cascading approach) contributes to the accuracy function.

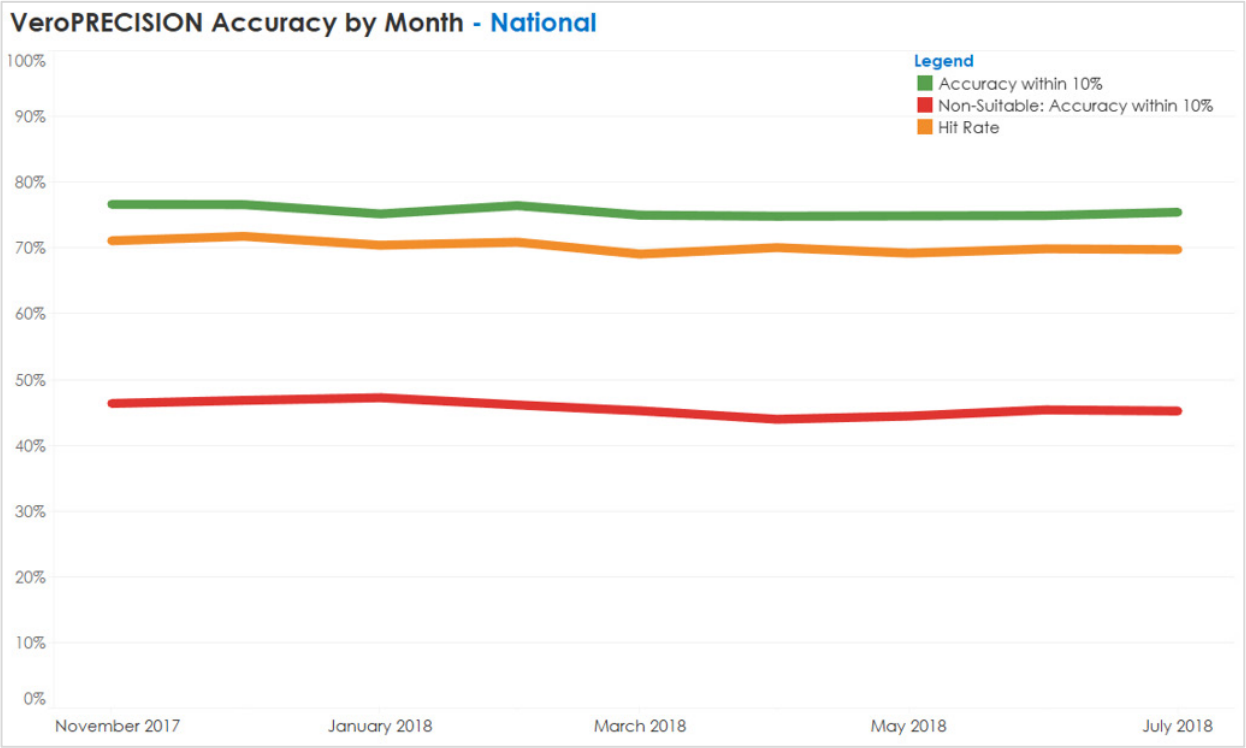
But that's not all the data told us. As an afterthought, we decided to run the AVMs on properties that were deemed unsuitable for AVM usage, as determined by VeroPRECISION. In essence, we are simulating the second AVM in the traditional cascade logic system.

In this test, we took a pool of properties in which the vast majority had already been successfully evaluated with AVM number one (VeroPRECISION).

We wanted to determine the accuracy level of AVM number two when used on those properties that had been categorized by our system as unsuitable for AVM use. The results were surprising and shocking at the same time.

Fear the second AVM

We discovered that the accuracy level for the second AVM, when used on a property that was judged unsuitable for the first AVM, didn't come anywhere close to the +/- 10 percent accuracy we expected. Instead, it came in between 40 percent and 50 percent of the expected value! Would you go to a doctor who was right less than 50 percent of the time? Certainly, not! And yet, when lenders were relying on an AVM in second position in their cascades, this is the accuracy level they are receiving on many occasions.



In test after test, we found the same thing. It became clear to us that most AVM cascade developers are recommending AVM cascades to value properties that are unsuitable for AVM evaluation -- this is very risky! In our view, the potential inaccuracy of the second AVM in the cascade is a strong reason to consider an alternative to the traditional AVM cascade.

The lack of valuation accuracy associated with AVM number two is explained by the notion known as "adverse selection." In the context of AVMs, adverse selection means that the properties provided to AVM number two are difficult to value because the properties for which AVM number one has already provided a value have been removed and those that remain are present because AVM number one was unable to provide an acceptable value. It is much like going to a buffet 15 minutes before the restaurant is closing, and expecting the food to be warm, tasty and have a great selection.

For banks and credit unions, the biggest downside to using AVM cascades has to do with the accuracy, or lack thereof for the AVM in second position. Not only are accuracy levels with AVM number two substandard, but there is also significantly greater outlier risk. For purposes of discussion, we can define

outliers as those returned values that are at least 25 percent above or below the appraised value. In our research, the outlier level is 4 to 5 times greater for AVM number two than it is for AVM number one.

Rather than trying to get the hit rate as high as possible lenders should be trying to get the valuation accuracy as high as possible.

This is exactly what VeroPRECISION provides. AVMs can absolutely deliver the required level of accuracy, providing that the property is suitable for evaluation using an AVM.

With VeroPRECISION, we first determine if an AVM is suitable for the subject property. If it is, then we run two simultaneously. Subsequently, an AI program that has tested hundreds of thousands of valuations determines the most accurate value for the subject property from the two AVM answers.

Each month we do a great deal of due diligence and out-of-sample testing to make the system smarter and more accurate. Veros shares that due diligence information with our end users and resellers on a quarterly basis. Most recently, VeroPRECISION has been tested against appraised values by an outside testing firm. Our results, as you might expect, were substantially more accurate than any single AVM.

VeroPRECISION, Ending the Fear

This white paper offers an inconvenient truth that the industry should consider, given the data we have uncovered. The AVM cascade may be an outdated tool that has potentially outlived its useful life.

AVMs are more accurate than ever before, based on more concrete data and technological advancements. With VeroPRECISION it is no longer necessary to hire and maintain a staff of experts to determine when an AVM can be used or how accurate one brand may be in a specific market. We have analytics that now make that information accessible to any lender, or authorized reseller that requests it.

Take the time to discuss the accuracy of your cascade, as compared to appraisals on the same properties with the cascade developer. Ask them to discuss with you how they determined the AVM selection for positions two and three in a given county. Ask them if there is an accuracy level below which an incremental AVM will not be called because it is likely to be inaccurate. Was AVM number two determined after the properties associated with AVM number one were removed from consideration (adverse selection)? The answer may surprise you. Beyond that, you should ask the accuracy and outlier incidence for all the AVMs in the cascade beyond number two.

When you're done, ask us about VeroPRECISION and find out how our tool takes AVM customer satisfaction to a new and higher level with these key elements:

1. Recognition that not all properties are suitable candidates for AVM use.
2. Elimination of non-suitable properties to significantly increase AVM accuracy.
3. Elimination of valuation outliers from the AVM pool to increase client satisfaction.

Best of all, VeroPRECISION can be brought to you by your favorite valuation supplier. In addition to offering VeroPRECISION directly, Veros also has numerous resellers that specialize in alternative valuation approaches.

In those cases in which the subject properties are found to be unsuitable for an AVM and require a full appraisal or other evaluation service, that property can be immediately escalated to one of the following four evaluation options, based on the customer's expressed preference:

- A desktop valuation performed by a certified appraiser
- A desktop valuation performed by an analyst
- A desktop valuation with exterior inspection performed by a certified appraiser
- A desktop valuation with exterior inspection performed by an analyst

Driven to deliver the highest quality valuation tools in the industry, Veros continues to outperform industry standards in quality, accuracy and timeliness. Request a free demo today or simply contact us for more information at 866.458.3767 or communications@veros.com.

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About the Author

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With more than 20 years in the analytics and automated valuation space for residential real estate, Robert Walker has built a solid reputation for product innovation, providing market insight, and anticipating customer needs. In his current role of Vice President of Sales for Veros, Mr. Walker is responsible for leading the company's sales team and market strategy and for driving innovation and creating a disruptive force in the market. Mr. Walker holds a BS in Economics from Vanderbilt University and received an MBA from Columbia University Graduate School of Business. He also has the rare honor of holding both the Certified Mortgage Banker® (CMB®) and the Chartered Market Technician (CMT) Designations. Mr. Walker may be reached at 866.458.3767 or RWalker@veros.com.

About Veros Real Estate Solutions

A mortgage technology innovator since 2001, Veros is a proven leader in enterprise risk management and collateral valuation services. The firm combines the power of predictive technology, data analytics, and industry expertise to deliver advanced automated solutions that control risk and increase profits throughout the mortgage industry, from loan origination to servicing and securitization. Veros' services include automated valuation, fraud and risk detection, portfolio analysis, forecasting, and next-generation collateral risk management platforms. Veros is also the primary architect and technology provider of the GSEs' Uniform Collateral Data Portal (UCDP). For more information, visit www.veros.com or call 866-458-3767.